SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1918.

No. 309.

WILLIAM F. BROTHERS, APPELLANT,

VS.

THE UNITED STATES.

APPEAL FROM COURT OF CLAIMS.

INDEX.

	Original.	Print.
Petition	1	1
General traverse	6	4
Argument and submission of case	7	4
Findings of fact	7	4
Conclusion of law	10	8
Opinion, per curiam	10	8
Appendix—Certified copy of Letters Patent No. 551614, to William F. Brothers	13	10
Judgment	24	21
Petition for appeal	25	21
Assignment of errors	26	21
Opinion, per curiam on application to proceed in forma pauperis	27	22
Order allowing appeal and striking affidavit from files	28	22
Clerk's certificate	29	23

1 I. *Petition—Filed May 26, 1915.*

In the United States Court of Claims.

WILLIAM F. BROTHERS
vs.
UNITED STATES. } No. 33072.

Petition.

To the Honorable the judges of the United States Court of Claims:

The petitioner, William F. Brothers, a citizen of the United States, residing in the city of Brooklyn, county of Kings, State of New York, respectfully shows:

First. That on and prior to July 18, 1895, the petitioner was the original and first inventor of a certain new and useful invention in cable crane with gravity anchor, not known or used by others in this country, before his invention and discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application and which had not been first patented, caused to be patented by him or his legal representatives or assigns in a foreign country upon an application filed more than twelve months prior to said July 18, 1895, that on July 18, 1895, the petitioner made application in writing to the Commissioner of Patents for a patent for said invention and filed in the Patent Office a written description of the same, and of the manner of making and constructing and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to
2 which it appertains or with which it is most nearly connected, to make, construct and use the same, explaining the principle thereof and the best mode in which he has contemplated applying that principle and particularly pointing out and distinctly claiming the particular improvement and combination claimed by him as his invention; and that the petitioner made the oath required in such cases to be made with said application in writing, that thereupon and upon payment of the fees required by law and other due proceedings had and on December 17, 1895, Letters Patent of United States No. 551614, bearing date as of said day and year, signed by the proper officials thereto duly authorized, were issued and delivered to Sarah E. Brothers and Myra A. Brown of Brooklyn, N. Y., and Plainfield, N. J., respectively, securing to them their heirs or assigns the sole and exclusive right to make to use and to sell the patented invention for the period of seventeen years from December 17, 1895, all as by said Letters Patent, or a duly certified copy thereof here in court to be produced will fully and at large appear.

Second. That by direct and mesne assignments in writing and duly recorded in the title records of the Patent Office at Washing-

ton, D. C., the petitioner acquired and now enjoys and owns the entire right, title and interest in, to and under said Letters Patent, together with the right to sue for and collect, either at law or in equity, royalties or damages or both for the past infringement thereof, all as will more fully and at large appear in and by said instruments in writing, or certified copies thereof in court to be produced.

Third. That the Panama Canal Commission in the construction of the Gatun Locks, advertised, under Circular #414, dated January 4, 1908, for bids for the installation of cableways to be used in the construction of said locks, which, according to the published specifications shall, among other requirements, have fixed steel booms projecting a sufficient distance to give a maximum clear run of twenty-eight feet beyond the dock and each bucket shall operate the entire length of the span; and which circular provided for the submission of bids for a special or alternative design of cableway providing overhanging booms on the head towers to enable loads to be lifted in the rear of the towers instead of in front of the towers, thereby avoiding the necessity of material to be handled being required to be transported across the delivery or tower tracks to the point from which such material is to be handled by the cableway.

3

Fourth. That the petitioner, William F. Brothers, in the name of "Balanced Cable Crane Company" submitted his bid for this work as advertised, covering both the straight requirements of the specifications of said circular and also the alternative design specified, which said bid was accompanied by full plans and specifications and the required bond, together with the statement that the structure submitted in said bid was covered and protected in and by said patent, which said bid was the lowest of all bidders under said circular.

Fifth. That the Panama Canal Commission, over the protest of the petitioner, rejected all bids submitted under said Circular #414 and re-advertised for new bids for cableways under Circular #455, dated July 8, 1908.

Sixth. That the petitioner, William F. Brothers, in the name of "Balanced Cable Crane Company" submitted his bid under said Circular #455, accompanied by the required plans and specifications and bond and in connection therewith attention was called by the petitioner to the fact that the apparatus was protected in and by said patent.

Seventh. That the contract for said cableway installation to be furnished under Circular #455, as the petitioner is informed and believes, was awarded to Lidgerwood Manufacturing Company of New York, N. Y., which company, under said award proceeded to install thirteen cableways for use in connection with the construction of said Gatun Locks of the Panama Canal, over the protest of the petitioner.

4

Eighth. Upon information and belief the petitioner avers that said cableways furnished by said Lidgerwood Manufacturing Company under said Circular #455, were installed during 1909 and 1910 and that in the latter part of 1910, during 1911 and 1912, said apparatus as installed was altered and changed in the method of its operation in such manner as to utilize the invention patented in and by said patent No. 551614, granted December 17, 1905, said change in structure and mode of operation being effected, as petitioner is informed, by the officials of the Panama Canal Commission.

Ninth. That upon the discovery of said infringement the petitioner brought suit against the Lidgerwood Manufacturing Company for damages in the sum of One hundred and thirty-seven thousand six hundred dollars ($137,600) in the United States District Court for the Southern District of New York for the said infringement of his patent.

Tenth. That upon the action of the trial judge in said suit directing a verdict for the Lidgerwood Manufacturing Company after proofs of the parties had been submitted the petitioner sued out a writ of error to the United States Circuit Court of Appeals for the Second Circuit to review the action of the trial judge in directing a verdict for the Lidgerwood Manufacturing Company, which Court of Appeals rendered and handed down its opinion dated March 9, 1915, holding the said patent No. 551614 to be valid and a pioneer in the art and entitled to a broad scope of interpretation and that it covered broadly the structure of tilting tower in which a gravity anchor alternately yields and overcomes the load embodied in the cableway structure as altered and used by the officials of the Panama Canal Commission and complained of as the infringement, and that as the Government was the infringing user of the meritorious invention of said patent and had appropriated said invention without the consent of the petitioner the action for the infringement complained of should be against the Government.

Wherefore, your petitioner respectfully prays for judgment against the said United States; that it account to your petitioner for the royalties and damages which the petitioner has sustained by reason of its infringement and infringing act complained of, and that your petitioner have judgment against said United States in the sum of One hundred and thirty-seven thousand six hundred dollars ($137,600) said amount being the damages suffered and sustained by the petitioner by reason of the loss sustained by the petitioner in the rejection of his bid for supplying said cableway installation, together with interest thereon from the date the infringing act by the Government commenced, and that your petitioner have such other further relief as to the Court may seem just.

WILLIAM F. BROTHERS.

SAMUEL E. DARBY, *Attorney.*

STATE OF NEW YORK,
County of New York, ss:

On this 22nd day of May, 1915, personally appeared William F. Brothers, the above named petitioner who being duly sworn, deposes and says that he is the petitioner hereinabove named, that he has read the foregoing petition and knows the contents thereof; and that the same is true of his own knowledge, except as to the matters therein stated to be alleged on information and belief and as to those matters he believes it to be true.

WILLIAM F. BROTHERS.

Sworn to and subscribed before me this 22nd day of May, 1915.

WALTER A. DARBY,
Notary Public, New York County, No. 879.

6 II. *General traverse.*

Court of Claims.

WILLIAM F. BROTHERS,
vs.
THE UNITED STATES. } No. 33072.

No demurrer, plea, answer, counterclaim, set-off, claim of damages, demand, or defense in the premises, having been entered on the part of the defendants, a general traverse is entered as provided by rule 34.

7 III. *Argument and submission of case.*

On May 29, 1917 this case was argued and submitted on merits by Mr. Samuel E. Darby for the claimant and Mr. H. C. Workman for the defendants.

IV. *Findings of fact, conclusion of law, opinion of the court and appendix.—Filed June 14, 1917.*

This case having been heard by the Court of Claims the court upon the evidence, makes the following

Findings of fact.

I.

On July 18, 1895, William F. Brothers, the claimant in this cause, filed in the United States Patent Office an application for a patent for "improvements in cable cranes with gravity anchors," upon which application Letters Patent No. 551614 were granted and issued, under date of December 17, 1895, to his assignees, Sarah E.

Brothers and Maria A. Brown; which letters patent, including specification and drawings, appear in the appendix to these findings.

II.

The following described patents, publications, and structures were in and a part of the cableway art at the time of the claimant's said application for, and the allowance and granting of, his said Letters Patent No. 551614.

French patent to Pluchet, dated January 4, 1851, and additions thereto.

French patent to Sassiat, dated June 19, 1852, and additions.

United States patent to Brown, No. 302705, dated July 29, 1884.

United States patent to Brown, No. 300689, dated June 17, 1884.

United States patent to Earth, No. 325328, dated September 1, 1885.

United States patent to Torres, No. 398097, dated February 19, 1889.

United States patent to Westerlund, No. 358517, dated March 1, 1887.

United States patent to De Camp, No. 469908, dated March 1, 1892.

The publication Engineering, of London, England, for June 2, 1882, pages 551–552.

The French publication Revue Industrielle des Mines, for the year 1888, Volume III, pages 49–65, and drawings.

8 The French publication Annales des Mines, for the year 1886, Volume X, pages 185–205, and drawings.

The French publication Annales des Ponts Chaussee, for the year 1887, Volume XIV, pages 632 et seq., and drawings.

The cableways used in the construction of the Chicago Drainage Canal, beginning in May or June, 1893, were of the counterweighted rigid tower and fixed span type shown by the Pluchet and Sassiat patents noted above, and the towers proper of which occupied the front or canal side of an extended truck-mounted platform or base, heavily counterweighted with stone at its rear side, and to which counterweighted rear of the platform or tower base the cable was extended from the top of the tower and firmly anchored.

The above-described patents and publications are, by this reference thereto, made a part of this finding, as exhibits hereto.

III.

Subsequent to the claimant's assignment to other parties, in August, 1895, of his interest in his said application for letters patent and after numerous conveyances of said letters patent, they were conveyed to the claimant by deed of assignment under date of October 2, 1912, two and a half months prior to their expiration by limitation, on December 17, 1912.

Among the different owners of said patent prior to its said assignment to the claimant was the Balanced Cable Crane Co. (Inc.), of the State of Maine, which company acquired title to the patent by deed of assignment of September 21, 1906. Said company, during its ownership of the patent, went into bankruptcy, and this patent, together with other patents belonging to the company, was, on February 7, 1911, sold and conveyed by the trustee in bankruptcy of said company to one George Doan. At the time of said sale and conveyance by the trustee in bankruptcy said patent No. 551614 was encumbered by a mortgage and lien in favor of the company's bondholders. The patent was sold and conveyed by the trustee to Doan, "subject, however, to any and all existing liens, mortgages, deeds of trust, bond and rights of bondholders, and other encumbrances existing upon or against or affecting said patent rights in any manner." Said mortgage and liens are not shown to have yet been discharged or released. Said patent was, on February 27, 1912, conveyed by Doan to one Ivan E. Konigsberg, by whom it was conveyed to the claimant, as set forth above, on October 2, 1912.

IV.

Under date of January 4, 1908, the United States Isthmian Canal Commission advertised for proposals for the construction and installation, in accordance with certain general specifications, of a number of cableways for use in the construction of the Panama Canal, the commission reserving the right to reject any or all proposals submitted. In response to said advertisement a number of proposals were received, among which was a proposal by the Balanced Cable Crane Co., which company was at that time the owner of the said Brothers patent No. 551614 and whose proposal was for the type of cableway disclosed by said patent.

9 The proposal of said company was the lowest in price of the proposals received. The cableways proposed by said company not being considered by the commission to be satisfactory or suitable for the work to be performed by them, said proposal was rejected. All other proposals received in response to the said advertisement were also rejected. New proposals were, under date of July 8, 1908, advertised for under modified specifications, which were intended to exclude, as unsuitable, the type of cableway shown by the said Brothers patent.

Said Balanced Cable Crane Co. again submitted a proposal based upon the said patented cableway, but the bid was awarded to the Lidgerwood Manufacturing Co., which supplied the rigid-tower fixed-span cableway that was used. The proposal of the Lidgerwood Manufacturing Co., of New York, being accepted the said company thereupon proceeded, during the years 1908 to 1910, to construct and install the one single cableway and the six duplex, or double, cableways complained of by the claimant in this suit as infringing his said

patent No. 551614, and which cableways were used by the commission during the years 1909 to 1913 in the construction of said canal.

The general type and form of the cableways used by the defendants is shown by drawings marked, respectively, "A" and "B" in the appendix to these findings.

V.

The single and the duplex cableways were similar in general design and construction except that the towers of the former supported a single cable, while those of the latter supported two cables, parallel to each other, at a distance of 18 feet apart, and each operated independently of the other, the length of the towers longitudinally of the canal cut being of proportionate dimension for the accommodation of the two cables. The towers were of structural steel construction; and taking the duplex cableways for illustration, each tower in vertical cross section from front to rear was in the shape of a right-angle triangle, with a base of approximately 50 feet, a perpendicular or vertical height of about 85 feet, and a hypothenuse of about 98 feet, with a length of about 38 feet longitudinally of the canal. The two towers of the cableway stood facing each other, on opposite banks of the canal cut, with their hypothenuse faces toward the cut. The cable span across the cut between the tops of the towers was approximately 800 feet. The cables used were 2¼-inch steel-wire cables having a rated breaking stress of 200 tons. The cables were supported by headblocks or saddles at the tops of the towers, and their ends were carried down and firmly anchored to the counterweighted bases of the towers.

Rigidity of the towers was desired; and in order to secure this and hold the towers rigid against any tendency to tip, tilt, or yield under the stress of the suspended cables and their loads, the platform base at the rear side of each tower—that is, the side farthest from the canal cut—was counterweighted by a block of cement concrete of over 150 tons weight, cast about the structural steel members of the base of the tower and extending along practically the entire length of the base. The entire weight of each tower, including the tower proper, the trucks upon which it was mounted, and the concrete counterweight, was upward of 500 tons.

To facilitate the shifting or moving of the cableways along the canal cut as the work progressed each tower was mounted upon sets of trucks, similar to the trucks of railway cars, on the front and rear sides of the base of the tower, and the whole structure was mounted upon two standard-gauge railway tracks located on the bank of the canal cut at the proper distance from each other and from the similar tower tracks on the opposite bank of the cut.

The cableways were operated by electrical power from the machinery stations in the head tower of each cableway.

VI.

Subsequent to the construction and installation of said cableways they were maintained and operated without change in structural form or method of operation other than that as the height of the walls and other work of the canal increased, beginning about August, 1910, it became necessary, in order to admit of the loads being carried to pass clear of the works and men engaged thereon as the height of the work increased, to take up the slack or decrease the deflection of the cable. The cables were accordingly drawn up for said purpose. This tightening up of the cables or reduction of their deflection increased the effect of the load and weight of the cables upon the towers as regards their tendency to yield or tilt.

VII.

It was the intent and purpose of the engineer officers of the Canal Commission, by and under whom said cableways were designed, constructed, and operated, that the towers thereof should be rigid and nonyielding to the full extent that rigidity in cable towers was possible; and there was no tilting or yielding of said towers other than such as resulted from a yielding of the roadbed of the tracks supporting them, portions of which roadbed consisted of "fills" of excavated materials upon swampy ground. There is no satisfactory evidence that the towers either yielded or tilted at any time during the period of claimant's ownership of said letters patent.

Conclusion of law.

Upon the foregoing findings of fact the court decides, as a conclusion of law, that there was no infringement of claimant's patent, and his petition should be, and the same is hereby, dismissed. Judgment is rendered in favor of the United States against the claimant for the cost of printing the record in this cause in the sum of eight hundred and ninety-three dollars and seventy-five cents ($893.75).

Opinion.

Per Curiam:

The plaintiff had assigned his application for a patent for "improvement in cableways on gravity anchors," and after letters patent had been issued and had been assigned to various parties he became the owner of said letters patent about two and a half months before their expiration by limitation in 1912. It is essential that any
11 right of action he has be confined to said two and a half months' time. There could be no assignment of any claim against the Government to him arising prior to the time he became the owner of the letters patent. (Section 3477, Revised Statutes.)

The Court of Claims did not have jurisdiction of claims for infringement of a patent by the United States until the act of June 25, 1910, 36 Stats., 851. Any jurisdiction which the court now has is subject to the limitations of that act. It is therein expressly provided that the Court of Claims shall not entertain suits "based on the use by the United States of any article heretofore owned, leased, used by, or in the possession of the United States." The cableways complained of in this action were used by and in the possession of the United States prior to June 25, 1910. In order to meet the question thus presented the plaintiff claims that subsequent to June 25, 1910, the Government materially altered the cableways being used by it in such a way as to make them infringe his patent. That result is said to flow from the fact that the Government decreased the deflection of the cables; that is, tightened them up, and that by so doing in connection with the loads they carried the towers were caused to yield or tilt and thereby to become in essence towers such as plaintiff's patent contemplated and covered. The cableways designed by the Government and used by it were intended to be rigid. So far from being like plaintiff's design they were intended to be different from it, and they were different. There can be no question that as constructed and used generally the said cableways used by the Government did not infringe plaintiff's device. That he had a meritorious device may be conceded. (Brothers v. Lidgerwood Mfg. Co., 223 Fed. Rep., 364.)

During the course of the defendants' work on the Panama Canal and the use of its cableways it was found necessary to tighten the cableways so as to admit of the carriage of loads over and free of the work being constructed, and the cables were accordingly tightened. This was done in the orderly conduct of the work upon which the Government was engaged. The railroad tracks upon which the base of the tower rested were built parallel with the canal cut and were at times constructed upon fills resting upon swamp or soft ground. These conditions may at times have caused a yielding of the tower under the stress of the load upon the cableways; and if that fact be conceded the question is, would the act of the Government in making the change suggested amount to an infringement of plaintiff's patent? As above stated, there was not intention on the part of the Government to allow its cableways to yield or tilt. As changed they did not amount to a mechanical equivalent, and in the absence of such an intention and mechanical equivalent it can not be said that the changes which the Government made and the results which followed, largely on account of the character of the foundation, would amount to an infringement. If the changes in the cables or the addition to the loads thereon could convert the Government's cableways into a device embodying the essential features of plaintiff's device, that fact would demonstrate the invalidity of plaintiff's patent because of the prior state of the art. Intended as they were to be rigid and designed as rigid towers, well known in the art, the circumstances that from an overburden they might at times yield or tilt

some, would be but a demonstration of the well-known fact that even a rigid tower may tilt before it collapses, and that it will
12 topple over or collapse under sufficient stress. If plaintiff's claim be so construed as to prevent the use of a rigid tower which under any state of circumstance may yield or tilt to some extent, then his claim in that regard would be too broad to give it validity.

Plaintiff's petition is plainly based upon an alleged infringement, but it was suggested in argument that if he can not recover for an infringement he may recover upon an implied contract. Plainly the two positions are inconsistent and the same facts do not give a right of action for both. The plaintiff protests that the Government had no right to use his device, and he can not recover upon an implied contract unless he consented to such use. (Russell's Case, 12 U. S., 516; Healy v. Sea Gull Specialty Co., 237 U. S., 479, 480.)

The evidence is very conflicting as to whether the tower, after the deflection of the cables was lessened, tilted or yielded at all. If they did so it was the result of accident and not of design. The evidence does not show any tilting or yielding of a tower during the period of plaintiff's ownership of the patent.

We think plaintiff has not shown an infringement of his patent and that there can be no recovery as upon an implied contract. The petition will therefore be dismissed.

13 Appendix.

No. 551614. The United States of America.

To all to whom these presents shall come:

Whereas William F. Brothers, of Brooklyn, New York, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in cable cranes with gravity anchors, he having assigned his right, title, and interest in said improvement to Sarah E. Brothers, of same place, and Maria A. Brown, of Plainfield, New Jersey, a description of which invention is contained in the specification of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas upon due examination made the said claimant is adjudged to be justly entitled to a patent under the law;

Now, therefore, these letters patent are to grant unto the said Sarah E. Brothers and Maria A. Brown, their heirs or assigns, for the term of seventeen years from the seventeenth day of December, one thousand eight hundred and ninety-five, the exclusive right to make, use, and vend the said invention throughout the United States and the Territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this

seventeenth day of December, in the year of our Lord one thousand eight hundred and ninety-five, and of the independence of the United States of America the one hundred and twentieth.

[SEAL.] JNO. M. REYNOLDS,

gravity-anchor.

Assistant Secretary of the Interior.

Countersigned:

JOHN S. SEYMOUR,

Commissioner of Patents.

United States Patent Office. William F. Brothers, of Brooklyn, New York, assignor to Sarah E. Brothers, of same place, and Maria A. Brown, of Plainfield, New Jersey. Cable-crane with

[Specification forming part of Letters Patent No. 551,614, dated December 17, 1895. Application filed July 18, 1895. Serial No. 556,327. (No model.)]

To all whom it may concern:

Be it known that I, William F. Brothers, a citizen of the United States, residing at Brooklyn, Kings County, New York, have invented certain new and useful Improvements in Cable-Cranes with Gravity-Anchors, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

14 The object of this invention is to facilitate the erection and operation of a suspension-cable in situations where a suitable anchorage could not be obtained for one or both ends of the cable; and the invention consists in combining a tension-weight upon the end of the cable with an inclined sheers or post adapted to transform the vertical tension of the weight into a horizontal tension upon the cable.

By this invention an anchorage for a cable may be erected either temporarily or permanently with very slight expense and may be employed in many situations, as in the surf upon the seashore, where a permanent anchorage could only be maintained with great expense and difficulty. By inclining the sheer-poles and weighting their upper ends, the tension of the cable is converted into a thrust at the lower ends of the sheers; but I have termed the device a "gravity-anchor," as it depends for its efficiency entirely upon the operation of gravity. The suspending-cable, having its outer end supported and anchored above the water upon a post or sheers at some distance from the shore, may be used with great advantage at life-saving stations during the stormy portion of the year to convey a life-boat over the surf into the still water. As repeated unsuccessful attempts are often made to launch life-boats in rough weather, great delay and loss may be avoided upon occasions where it is necessary to promptly assist vessels in distress by thus launching the life-boat without encountering the surf.

The anchorage constructed according to my invention may also be made movable by supporting the sheers upon a suitable car or truck mounted movably upon a track, which in such case is preferably inclined to sustain the thrust at the base of the sheers. Such a movable anchorage may be used in excavating a large area to shift the end of a cable around the periphery of a circle, thus enabling a single cable if fastened to a suitable abutment in the center of the circle to sweep over the entire surface of the same and to sustain and shift a cable-crane or similar hoisting device over the entire circular area.

The invention will be understood by reference to the annexed drawings, in which—

Figure 1 is a diagram representing in elevation a suspending-cable anchored adjacent to an ocean beach with a carrier and boat suspended therefrom. Fig. 2 is a plan of the same. Fig. 3 is a side elevation, partly in section where hatched, of the improvements applied to a cable-crane with movable anchorage. Fig. 4 is a plan of the same. Fig. 5 is an elevation of a portion of the cable with the carrier and hoisting devices thereon. Fig. 5^a is a section of the cap b^4 on an enlarged scale. Fig. 6 is a diagram showing the connections at the top of the sheers for the cable end and the gravity-load; and Fig. 7 is a diagram showing the compensating effect of the gravity-anchor, with an indication, by dotted lines, of the carrier and cable in different positions.

In Figs. 1 and 2, A designates the cable, B the fixed abutment, and C the fixed anchorage. D designates the sheer-poles, two being preferably used and braced toward one another at the top, where they are united by a cap E.

Figs. 1 and 2 represent an arrangement suitable for launching a life-saving boat, S designating the shore, W the water adjacent thereto, and S′ the bottom below the water, upon which the sheer-poles are set. The sheers are set at an angle, of preferably forty-five degrees, to the cable, and a platform or pan F is suspended from the cap E and loaded with tension-weights G. Sand or stones may be readily employed for such weight, by making the platform of suitable strength and dimensions. A carrier H is shown suspended upon the cable by a frame with wheels I, and a boat J is shown supported beneath the carrier by hanger-ropes b, hanger-frame b′, and hoisting-ropes c. The ropes c would be wound upon drums in the carrier H. These parts are shown in dotted lines adjacent to the shore abutment B with the boat hoisted to clear the breakers indicated by the elevation W′ upon the water, and the boat is shown in full lines, lowered upon the water adjacent to the sheer-poles D beyond the breakers, where the boat can be launched with safety. The means for suspending the boat may be entirely detachable, so that they can be cast off as soon as the boat is in the water and the boatmen have their oars extended. Means to prevent the boat from twisting upon the rods c, or from being displaced by the wind when in the transportation upon the cable, may be used, if desired; and such means may consist of a guide-arm d, attached to one side of the carrier H and

provided with a wheel d′ to ride upon the cable. An arm or pole e is attached to one end of the boat beneath the arm d, and its outer end is attached to a cord f, which is extended over a pulley g upon arm d to a drum upon the carrier H. The ropes c and f are wound and unwound simultaneously, and the guides d and e serve to keep the boat from swinging when it is raised or lowered.

The carrier may be made of any suitable construction and propelled upon the cable by any suitable power. A construction is indicated in Fig. 5, which is substantially the same as that in my application, Serial No. 457116, filed January 3, 1893, and designed for use with an electric motor. In this construction, the wheels I are shown journaled directly upon a frame H′, which sustains an electric motor K and suitable gearing to rotate the wheels I and hoisting-drums c′. A seat L for an operator is shown affixed to the side of the carrier in proximity to handles M M′, which are adapted to connect a friction-wheel m upon the motor-shaft n at pleasure with the gearing of the wheels I or the hoisting-drums c′. The poles D are shown in Fig. 1 stepped in the bottom S′, but projected therefrom sufficiently to bend freely under the strain of the cable and the tension-weight G.

With the sheer-poles set an angle of forty-five degrees to the cable, the weight of the poles, if permitted to yield, exerts a very material tension upon the cable independently of the tension-weight, and the latter may be proportioned to produce the additional tension required to strain the cable in the required degree. Such tension-load may be computed, if required to transport over the turf a boat which, with the boatmen and the carrier H, would weigh two thousand pounds. The deflection of the cable in such case would be made a given proportion of its length, and the tension-weight would be made correspondingly greater than the load upon the cable.

The tension-weight, with the sheer-poles, constitutes an anchorage which may be planted at any point to produce the required tension upon the cable, and thus avoid the necessity of an anchorage in the earth. It is well known that the tension at the ends of a suspending-cable is much greater with a given load at the middle of the cable than when the load is close to either abutment, and my im-
16 proved anchorage varies the angle of the cable in proportion to the load, if the sheer-poles be so made as to support the load and also yield under variations of the tension.

Fig. 7 illustrates in diagrammatic form the changes of angle in the cable, the parts being indicated in solid lines with the load in the middle of the cable, and in dotted lines with the load close to the sheer-poles. In the latter position the slack of the cable is partially taken up by the tension-weight, and the sheer-poles are bent outwardly from the fixed abutment, thus holding the cable at a smaller angle with its abutment than would be the case if the sheer-poles were rigidly fixed and the slack of the cable were unchanged during the shifting of the load. I have found that with the use of the flexible sheer-poles and the tension-weight G, the angle of the cable to the horizontal line at the cap E is substantially the same for all

positions of the load, as is indicated by the parallelism of the full lines and dotted lines adjacent to the cap E.

In Fig. 7 the base of the sheer-poles D is attached to a log or axle D^2 arranged to rock or oscillate in bearings D^3, to assume the various positions required; but the poles are adapted to move through the small angle required in practice if stepped in or on a flat beam, as shown at D^4 in Fig. 3.

Where the carrier is used in a cable-crane for transporting a load from one point to another, such automatic adjustment of the cable is of material importance, as it preserves the same inclination of the cable to a horizontal line where the load is moving near the abutments, and the expenditure of great power is thus avoided, which would otherwise be required with a comparatively slack cable, which would produce a very great inclination at the abutments if the latter were rigid.

A construction for operating a cable-crane over all points within a circular area is shown in Figs. 3 and 4, B′ representing a stationary abutment and D′ the sheers erected upon a moving platform-car O. Such platform is shown mounted, by suitable trucks with wheels o′, upon a circular track P, the inner rail of the track being considerably elevated to resist the inward thrust of the sheers.

The carrier H is represented with a seat L for the operator, and the hoisting-ropes c are shown connected with a dumping-bucket p. An ordinary railway-track Q is shown outside the circular track P and provided with an ordinary dirt-car q beneath the sheers D′. The inclination of the sheer-poles permits the bucket p or any other load carried by the ropes c to be moved between the sheer-poles and placed upon or over the track Q. For excavating a reservoir or other large area the abutment B′ would be erected in the center of the area and the track P extended around its entire periphery. Guy-ropes T (of which a part only is shown in Figs. 3 and 4) would be extended from the abutment B′ to suitable points to resist the cable strain upon a certain arc of the track P, and such guy-ropes could be changed when it was required to operate upon another arc.

A railroad-track could be extended to different sides of the area to receive the dumpage from the carrier, or the carrier when set above the sheer-poles, as shown in Fig. 1, could discharge its load into wagons or carts of any description. A portable engine s and boiler t with dynamo u for generating the electric current,
17 and gearing to drive the car O upon the track P, may be mounted upon the platform of such car, and the car may thus be adapted to traverse the track P while carrying a load upon the cable to shift the load to any desired point. The load may thus be taken up at one point of the area and delivered to another part or discharged to a track located at one side, as shown in Fig. 4. The shifting of the tension devices can be effected by this means, as the weight G maintains the tension of the cable during any variation in the location of the load.

The entire apparatus may be readily constructed to be taken down with facility at the close of a given piece of work, and all the parts of the sheers and other apparatus constituting the gravity-anchor may be packed upon such car for transportation to any desired place.

The abutment B′ supported by the guy-ropes T constitutes a stationary support for one end of the suspended cable, while the sheers D′ constitute a support which is movable concentric with such abutment, its tension being supported by the guy-rope operating upon the opposite side of the abutment from the sheers.

Although the abutment B′ is stationary, it may be made portable, and is shown in Figs. 3 and 4 of the drawings with a pyramidal framing and with sills B^2 set upon the ground to support the vertical strain. A cap b^4 (illustrated by an enlarged section in Fig. 5^a) is shown pivoted upon the top of the pyramidal frame and formed with an eye to engage the cable and the guy-ropes, and adapted to turn upon the support as the position of the ropes is varied. Such a stationary support would, in practice, be tenoned at the intersection b^2 of the horizontal and vertical joints and secured when in use by bolts, so that its parts may be separated and packed upon the car with the parts of the gravity-anchor, the whole constituting a plant for excavating by the methods described above. Owing to the inclined position of the sheers, it necessarily stands intermediate to the cable and the weight G, the cable being approximately horizontal and attached to the sheers at an acute angle, while the weight G hangs vertically below its point of attachment upon the opposite side of the sheers. Owing to the inclination of the sheers, the bottom of the sheers necessarily projects toward the fixed support, the tension of the cable, by the operation of the gravity-anchor, being converted into a thrust toward such fixed support. Such thrust may obviously be increased, with the same amount of weight G, by diminishing the angle between the cable and the sheers and approximating the latter more closely to a horizontal line.

The operation of the tension device in automatically taking up the slack of a suspended cable, when the load approaches the supports, enables me to move the load much closer to the supports, with the same degree of power, than has heretofore been possible. Where the cable-supports are rigidly fixed, the inclination of the cable adjacent to the support is materially increased when the load approaches such support, and the power required to propel the carrier up such inclined portion toward the support is four or five times greater than is necessary to move the load over other portions of the cable.

By the use of my automatic tension device the angle of the cable is kept nearly the same throughout the movement of the load toward the supports, and the angle adjacent to the support, when the
18 load is at such point, is no greater than when the load is in the middle of the cable. The same degree of power which is capable of transporting the load at other points is therefore able to move it close to the supports. By transporting the load close to the

supports at both ends of the cable I am enabled to utilize the entire length of the cable with a moderate exertion of power, which has not heretofore been possible.

It is obvious that the guide-arm e (shown projected from the boat J. in Fig. 1) might be similarly attached to any load suspended from the carrier by the cords c, and the load may thus be guided in like manner and kept from swaying, or twisting the cords, when lowered thereby.

The guide-poles upon the carrier and upon the load may be duplicated if desired by projecting them from opposite sides of the carrier and from opposite sides of the load, and having cords f operating upon both guides in the manner already described.

Having thus set forth the nature of my invention, what I claim herein is—

1. The combination, with a suspended cable, a carrier to support a load movably upon the cable and means for propelling the carrier thereon, of a stationary support or anchor at one end of the cable, and a gravity anchor at the opposite end of the cable, consisting of an inclined sheers with the cable attached thereto, and a weight hung permanently from the sheers upon the opposite side to the cable, as and for the purpose set forth.

2. The combination, with a suspended cable, a carrier to support a load movably upon the cable and means for propelling the carrier thereon, of a fixed anchor at one end of the cable, and a gravity anchor at the opposite end of the cable, consisting of inclined sheer-poles braced toward one another and united at the top, and a weight hung permanently from the sheers upon the opposite side to the cable, as and for the purpose set forth.

3. The combination, with a suspended cable, a carrier to support a load movably upon the cable and means for propelling the carrier thereon, of a fixed anchor at one end of the cable, and inclined sheer-poles held movably at the base so as to yield with variations of load upon the cable, with the cable attached to the top of said sheers, and a weight hung permanently from the sheers upon the opposite side to the cable, as and for the purpose set forth.

4. The combination, with a suspended cable, of a fixed support at one end of the same, a track concentric with the fixed support, a car upon the track, inclined sheers attached to the outer end of the cable and supported upon the car, and a weight attached to the sheers upon the opposite side from the cable, the sheers, weight and car forming a gravity anchor movable about the fixed support, the whole arranged and operated substantially as herein set forth.

5. The combination, with a suspended cable, of a stationary support at one end of the same, and a movable gravity anchor at the opposite end of the same, consisting of an inclined sheers with the cable attached thereto at an acute angle, and a weight attached to the sheers upon the opposite side from the cable, means for moving the base of the sheers about the fixed support, and a guy-rope for

bracing the stationary support upon the side opposite to the sheers, substantially as herein set forth.

19 6. A portable plant for excavating, consisting of a cable, a portable stationary support as B′, a movable gravity anchor for the opposite end of the cable, consisting of inclined sheer poles and a weight or weight pan attached thereto as set forth, and a car fitted to the base of the sheer pole for use upon a circular track, and adapted when required to contain the stationary support and the parts of the gravity anchor and to transport them together when packed thereon, substantially as herein set forth.

7. The means for guiding the load from a suspended carrier, consisting of the combination with the cable A and the carrier H, of the arm d having wheel d′ fitted to the cable, the arm e projected from one end of the load beneath the arm d, and a cord connecting the arms, as and for the purpose set forth.

8. The means for guiding the load from a suspended carrier, consisting of the combination with the cable A and the carrier H, of the arm d having wheel d′ fitted to the cable, the arm e projected from one end of the load beneath the arm d, one or more cords c suspending the load from the carrier with a drum to wind up the same, the cord f extended over pulley g upon the arm d, and a drum upon the carrier to wind up said cord simultaneously with the cord c as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM F. BROTHERS.

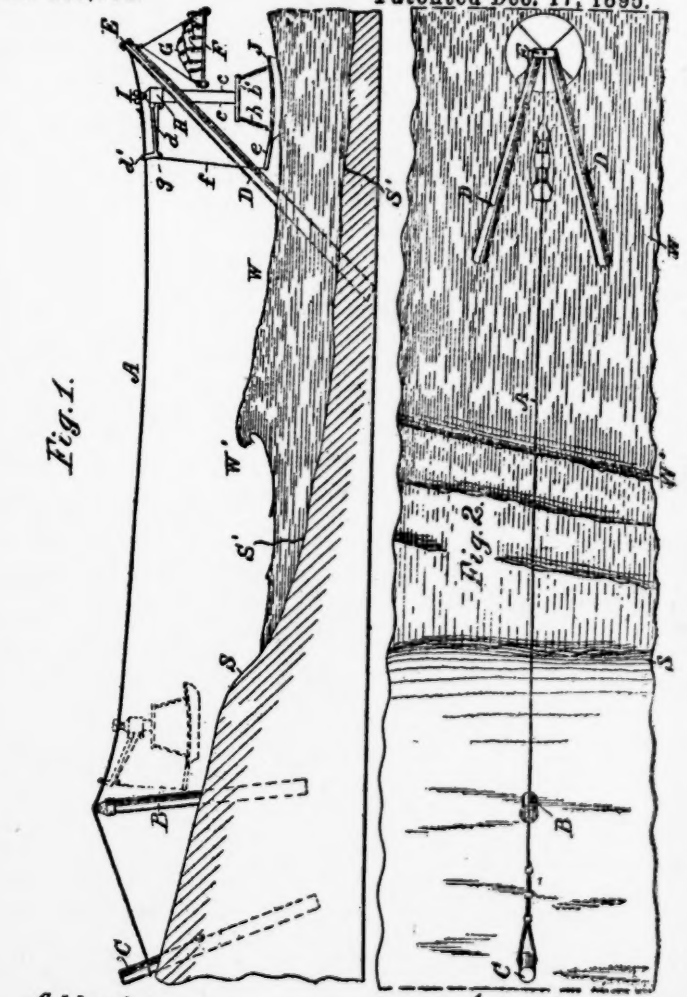
Witnesses:
L. LEE,
THOMAS S. CRANE.

(No Model.) 3 Sheets—Sheet 1.

W. F. BROTHERS.

CABLE CRANE WITH GRAVITY ANCHOR.

No. 551,614. Patented Dec. 17, 1895.



Attest:
L. Love
Edw. F. Kinsey

Inventor
William F. Brothers,
per Thomas L. Crane Atty.

21

(No Model.) 3 Sheets—Sheet 2.

W. F. BROTHERS.

CABLE CRANE WITH GRAVITY ANCHOR.

No. 551,614. Patented Dec. 17, 1895.

Fig. 3.

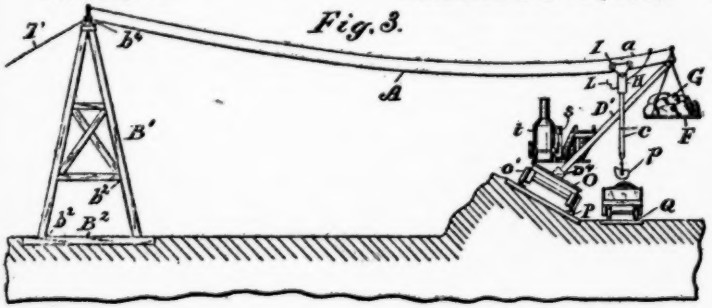
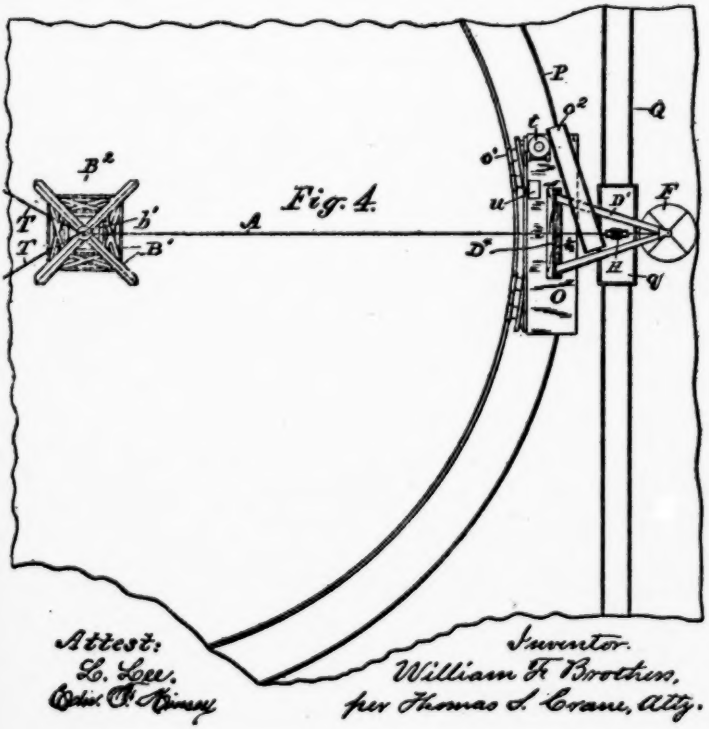


Fig. 4.



Attest:
L. Lee.
Edw. C. Kinsey

Inventor.
William F. Brothers,
per Thomas L. Crane, Atty.

(No Model.) 3 Sheets—Sheet 3.

W. F. BROTHERS.

CABLE CRANE WITH GRAVITY ANCHOR.

No. 551,614. Patented Dec. 17, 1895.

Fig. 5.

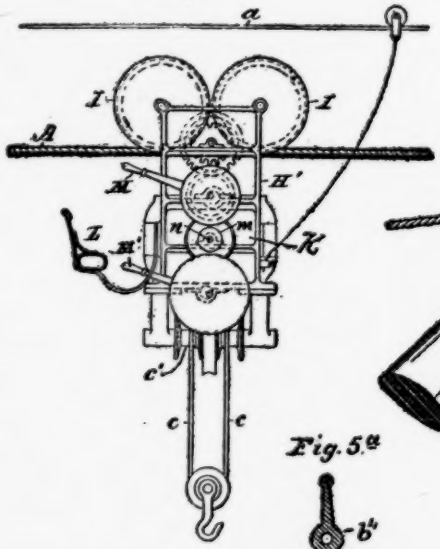
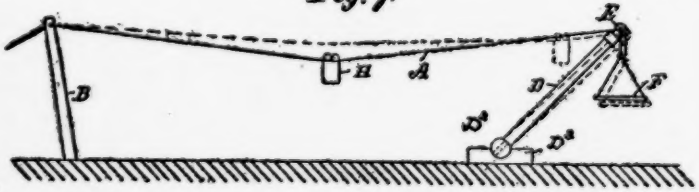


Fig. 6.

Fig. 5ª

Fig. 7.

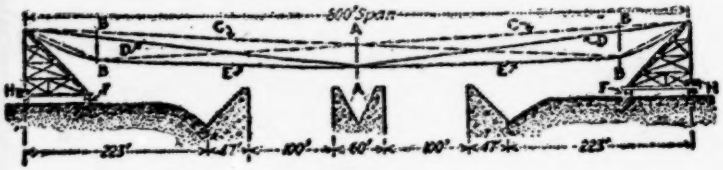


Attest:
L. Law.
Edwin C. Kinsey

Inventor.
William F. Brothers,
per Thomas S. Crane, Atty

23

"A"



"B"

24 V. *Judgment of the court.*

At a Court of Claims held in the City of Washington on the fourteenth day of June, 1917, judgment was ordered to be entered as follows:

The court, upon due consideration of the premises find in favor of the defendants and do order, adjudge, and decree that the claimant, William F. Brothers, as aforesaid, shall not have and recover any sum in this action of and from the defendants, the United States, and that the claimant's petition be and it hereby is dismissed: And it is further ordered, adjudged, and decreed that the defendants shall have and recover of and from the claimant, William F. Brothers, as aforesaid, the sum of eight hundred and ninety-three dollars and seventy-five cents ($893.75), the cost of printing the record in this cause in this court, to be collected by the clerk as provided by law.

By the Court.

25 VI. *Petition for Appeal.—Filed September 8, 1917.*

I now come in my own behalf, believing that I have been aggrieved by the findings of facts and decision of this court in the above entitled cause, made June 14th, 1917, and with respect to the conclusions of law and judgment granted in favor of the United States, against me, and I hereby appeal from said findings of facts, decision, conclusion, and judgment to the Supreme Court of the United States, for the reasons specified in the assignment of errors which is filed herein, and I pray that this appeal may be allowed and that the transcript of the record, proceedings, and papers upon which said findings of fact, decision, conclusion, and judgment were based, and in accordance with the rules and requirements in such cases provided, may be sent from this court to the Supreme Court of the United States.

William F. Brothers.

26 VII. *Assignment of Errors.—Filed September 8, 1917.*

I now come in my own behalf as appellant in the above-entitled cause, and present herewith the following assignment of errors upon which my appeal to this court is based:

1. The Court of Claims erred in its findings of fact which are against the weight of evidence.

2. The Court of Claims erred in holding as a conclusion of law upon its findings of facts that there was no infringement by the United States of my patent No. 551614, granted December 17th, 1895.

3. The Court of Claims erred in failing to hold as a conclusion of law upon its findings of facts that the United States infringed my patent No. 551614, granted December 17, 1895.

4. The Court of Claims erred in rendering judgment in favor of the United States against me, in the sum of $893.75, for the cost of printing the record.

5. The Court of Claims erred in failing to render judgment in my favor against the United States.

Very respectfully,

WILLIAM F. BROTHERS.

27 VIII. *Opinion Per Curiam.—Filed October 29, 1917.*

Per Curiam:

The plaintiff filed an application for appeal to the Supreme Court from the judgment of this court rendered on the 14th day of June, 1917. Accompanying his application for appeal are certain assignments of error and an affidavit. The defendants move to strike the said application or motion from the files, assigning several reasons. The plaintiff replies to defendants' motion to strike, and files an affidavit which relates to his financial inability to prosecute his appeal. A point made by defendants in their motion to strike plaintiff's application or motion for appeal is that the affidavit which accompanies plaintiff's application contains scandalous and impertinent statements and matters, and should be stricken for that reason. We think that ground is well taken, and the affidavit attached to plaintiff's application or motion for appeal filed September 8, 1917, is ordered to be stricken from the files in this case and shall not form a part of the record on appeal.

The application for appeal will be allowed. The court is of opinion that plaintiff's affidavit filed herein on the 1st day of October, 1917, shows sufficient cause for allowing his appeal to be prosecuted by him in forma pauperis, and the court is unwilling to certify that the said appeal is not taken in good faith.

An order will be made allowing the prosecution of said appeal in forma pauperis so far as this court may grant such privilege under the provision of the act of July 20, 1892, 27 Stats., 252, as amended by the act of June 25, 1910, 36 Stats., 866.

28 IX. *Order of court allowing claimant's application for appeal and striking from files affidavit filed Sept. 8, 1917.—Filed October 29, 1917.*

It is ordered by the court that the application of the plaintiff, William F. Brothers, for an appeal in said cause from the judgment of this court dismissing his petition be and the same is hereby al-

BLUEPRINT
TOO
LARGE
FOR
FILMING

lowed, and the court authorizes the prosecution of said appeal in forma pauperis by the said plaintiff.

It is ordered that the affidavit accompanying plaintiff's application, filed September 8, 1917, be stricken from the files in said cause.

By THE COURT.

29 In the Court of Claims.

WILLIAM F. BROTHERS, vs. THE UNITED STATES. } No. 33072.

I, Saml. A. Putman, chief clerk Court of Claims, certify that the foregoing are true transcripts of the pleadings in the above-entitled cause; of the findings of fact and conclusion of law and appendix filed by the court; of the opinion of the court; of the judgment of the court; of the claimant's application for appeal; of the assignment of errors; of the opinion per curiam; of the order of court allowing appeal and striking affidavit from the files.

In testimony whereof I have hereunto set my hand and affixed the seal of said court at Washington City this seventh day of November, A. D., 1917.

[SEAL.]

SAML. A. PUTMAN,
Chief Clerk, Court of Claims.

(Indorsed:) Office of the Clerk, Supreme Court U. S. Received Nov. 13, 1917.

(Indorsement on cover:) File No. 26,245, Court of Claims. Term No. 309. William F. Brothers, Appellant, vs. The United States. Filed November 30th, 1917. File No. 26,245.

○